U.S. Department of Transportation
Federal Highway Administration

Memorandum

Subject: Revised Guidelines for the Control of Carbon Monoxide (CO) Levels in Tunnels

Date: MAR 31 1989

From: Director, Office of Environmental Policy
Director, Office of Engineering

Reply to Attn. of: HEV-30

To: Regional Federal Highway Administrators
Direct Federal Program Administrator

In 1975, the Federal Highway Administration (FHWA) and the Environmental Protection Agency (EPA) issued guidelines for the maximum CO levels in new tunnels (Attachment 1). The guidance established a maximum CO level of 125 ppm and an exposure time of 60 minutes.

Recently, in response to a request from Congressman John D. Dingell, Chairman of the House Subcommittee on Oversight and Investigations, the EPA reevaluated and subsequently recommended revisions to the 1975 guidance. The revised guidance establishes a maximum CO level of 120 ppm and an exposure time of 15 minutes for peak-hour traffic. If projected peak-hour tunnel travel times exceed 15 minutes, the guidance establishes the following additional CO guidance levels: 65 ppm for 30 minutes; 45 ppm for 45 minutes; and 35 ppm for 60 minutes (Attachment 2).

The FHWA, with the assistance of a tunnel ventilation consultant, evaluated the revised guidance and concluded that it is technically and economically feasible to meet the above criteria during normal peak-hour traffic for several reasons. First, a conservative approach has been used to review previous tunnel ventilation systems. Tunnels on Federal-aid projects were designed to a 125 ppm ceiling for CO, rather than on a weighted average over 60 minutes as contained in the 1975 guidance. Consequently, there is little difference between our current design practice, and EPA's first criterion of 120 ppm in 15 minutes. Secondly, the longest trip times for U.S. tunnels under normal peak-hour traffic conditions will be less than 15 minutes. Finally, the emission levels for individual vehicles have dropped substantially over the past 20 years, and will continue to decrease as older vehicles are replaced.

This new guidance should be used for the evaluation of current and future tunnel analyses conducted under the National Environmental Policy Act. In addition, under the new guidance, the environmental analysis should discuss incident management techniques which will be used to assure that CO exposure levels of the traveling public are kept to a minimum during accidents and

breakdowns. This guidance does not apply to existing tunnels or tunnels for which final approvals have been received on the environmental document. Further, the new criteria are directed to the protection of the traveling public with a margin of safety. The CO exposure levels for tunnel workers will continue to be subject to Occupational Safety and Health Administration criteria (35 ppm, 8 hrs; 200 ppm ceiling).

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2 Attachments